DECEMBER 1991

PRODUCTION

THE MAGAZINE OF MANU[illegible]NAGEMENT

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HENRY SHARPE LOOKS AT MANUFACTURING: YESTERDAY, TODAY, TOMORROW

A Factory Tour in the Year 2001 with DICK MORLEY

The First Look at YASKAWA'S Amazing MOTOMAN CENTER

PRODUCTION
THE MAGAZINE OF MANUFACTURING MANAGEMENT

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Cover photo of Henry Sharpe courtesy of Brown & Sharpe Manufacturing Co.

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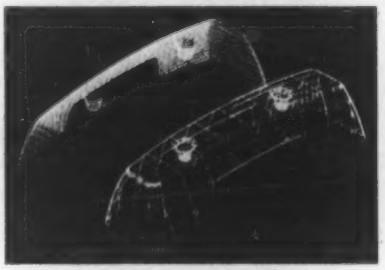

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Spending Money:

WILL THERE BE LESS TO GO AROUND IN '92?

The numbers for the 24th annual PRODUCTION Capital Spending Survey are in. It looks like the purse strings will be tight—and that those companies with innovative manufacturing technologies may, finally, come into their own.

By Gary S. Vasilash, Editor

"Economics. That's what it's all about right now," remarks Edward D. McCallum, Jr., principal, McCallum & Associates (Birmingham, Michigan), and the man who has conducted PRODUCTION Magazine's annual Capital Spending Survey for the last 24 years.

His comment, on the surface, isn't too surprising.

After all, the Capital Spending Survey is an economic tool. It is based on the response to 10,000 surveys sent to every plant PRODUCTION Magazine reaches (those in the discrete parts manufacturing industries: SIC 34, Fabricated Metal Products; 35, Machinery, except Electrical; 36, Electrical Machinery; 37, Transportation Equipment; 38, Instruments; and a targeted group within a subset of SIC 25, Metal Furniture) with employment of 250 or more, and every Nth plant with employment of 250 or less until the 10,000 number was reached.

The surveys were sent in mid-July to people whose responses about capital spending intentions are viable in the sense that these people are likely to have a signal effect on how much is spent on what: presidents, executive vice presidents, vice presidents of manufacturing, directors of production engineering, manufacturing managers, plant managers, etc.

There were 3,003 usable surveys returned by the cutoff date, August 16.

In other words, McCallum developed something that might feel right at home in the pages of *Fortune* or *Business Week* or other places where economics is the way of life.

But when he says "Economics. That's what it's all about right now," the *it* that he is referring to is manufacturing.

Now, perhaps more than ever—or at least since the downturn in 1982—manufacturing companies are getting an up-close-and-personal view of what is sometimes known as "the dismal science." The economic situation in manufacturing industries is, in McCallum's estimation, not particularly good, at least not in the context of the results of the Capital Spending Survey and anecdotal comments he's picked up while doing market research for a variety of machine tool manufacturing companies.

Speaking of the 1992 Capital

Spending Survey, he remarks: "This isn't a doomsday report. But it isn't a real happy one, either."

The overall number for investment in capital machinery and equipment in 1992 is estimated to be $10,353,000,000, which is down 4.2 percent compared to the spending intention reported in the 1991 Capital Spending Survey, which was pegged at $10,815,000,000.

Things get a bit sticky at this point inasmuch as given the prevailing economic conditions that have existed in 1991, which weren't anticipated in 1990, when the 1991 Capital Spending Survey was conducted, McCallum is scaling back the $10.8-billion by about 16 percent.

This could then mean that the projected $10.3 billion for 1992 is actually ahead of 1991, and that 1992 will be a pretty good year capital-equipment-spending-wise.

There seems to be some indications—quoting and ordering activity at some machinery vendors, for example—that this may be so.

McCallum, however, does not share this optimism. "This should be the second year in a row that spending is down in real terms."

OVERALL MOTIVES FOR 1992 CAPITAL INVESTMENTS

Note how the motives for investments have changed little over the years. There is a fractional up-tick in the "New products, models" category, which may portend shorter product cycles.

	1992	1991	1990	1989
New machines to reduce costs	64.2	65.1	59.4	60.2
Tighter quality standards	47.6	48.9	47.2	45.9
Increase machine/equipment capacity	46.7	51.3	52.4	53.3
Machine/process flexibility	32.9	32.9	28.0	29.2
New products, models	32.0	31.3	29.9	31.7
Make instead of buy	15.4	16.4	15.6	15.8

The reason why the 1991 projection was off, and why he sees 1992 as not getting better, can be summed up in one word: Automotive.

"There's no cash flow in automotive right now," McCallum remarks. "They have to sell cars in order to spend money on new equipment."

And sales have not been what they, apparently, need to be.

McCallum goes on to explain that there is a "ripple effect": "Parts suppliers are not shipping parts because the auto companies are not selling cars. So where do they get the money?"

Additional pressures are being placed on the automotive supplier companies in that the OEMs are working hard to reduce their costs, which means that suppliers are generally finding that they need to cut their costs to their customers. "Squeezing" is a word that comes up in this context. "It's not real easy to be a supplier right now," McCallum says, adding, "Nor an auto manufacturer, either."

He ticks off several factors that relate to why he doesn't see things getting a whole lot better soon:

- Long-term interest rates were high in 1991. McCallum thinks they'll remain high in 1992. "Everyone talks about the short-term interest rates falling in 1991. That's true, they did fall, but you don't buy capital equipment with short-term loans."
- Credit is, McCallum says, tight. "You can't buy equipment without credit." Not only is there, he maintains, a general lack of availability of funds, but some companies may already be pretty well borrowed-out.
- Profit margins were down for companies in 1991. Will they improve in 1992?

Say Good-bye to Systems

Remember when flexible manufacturing systems (FMS's) were going to be the veritable salvation of manufacturing, the means to high flexibility in machining operations? To be sure, the future looked bright. But then the reality turned somewhat bleak, when many of those who had FMS's discovered that they needed copious amounts of industrial-strength Raid to get the bugs out.

And this disenchantment is reflected in the Capital Spending Survey numbers: 12.7 percent say they will be operating systems in 1992; 84.4 percent won't be.

As for purchasing plans: 9.2 percent plan to purchase; 76.6 percent say no.

With regard to the applications for the FMS's, metalcutting actually comes in second place: 40.8 percent. Assembly is number-one: 48.6 percent.

But flexibility is not totally forgotten. It's just become smaller. People are more interested in cells.

The numbers show 31.9 percent saying they use cells; 65.8 percent don't.

And 23.8 percent say they plan to purchase cells in 1992; 72.9 percent won't.

Like FMS, assembly is in first place, 48.5 percent, with metalcutting in second, at 45.0 percent.

Compare these three charts. First, there are plants operating at a lower capacity than they have for the years shown, yet, as the next chart shows, a more bullish expectation than the two years previous. McCallum says the thing to watch is the answer to the question of "Why?" they expect the operating level to improve. "Incoming orders on increase" is, McCallum says, the most quantifiable item, and it is down substantially since 1989. On the other hand, people are fairly optimistic, as indicated by the "Forecast optimistic" at the highest level since 1988.

CURRENT PLANT OPERATING LEVEL

1992	1991	1990	1989	1988
76	78	79	80	77

(Average capacity level reported August preceding survey year)

ANTICIPATED 1992 OPERATING LEVEL

	1992	1991	1990	1989	1988
Higher	55.3	52.5	53.4	58.0	59.0
Same	33.3	36.8	36.8	33.9	31.7
Lower	9.9	9.5	8.8	6.5	5.0
No answer	1.5	1.0	1.0	1.6	4.3
Total	100.0	100.0	100.0	100.0	100.0

EXPECTATIONS FOR 1992

	1992	1991	1990	1989	1988
Incoming orders on increase	34.6	37.9	42.1	49.7	46.0
Incoming orders on decrease	10.4	9.8	8.6	5.5	4.7
Incoming orders flat	24.6	26.0	24.6	19.5	21.2
Forecast optimistic	35.3	32.8	31.8	34.3	36.2
Forecast pessimistic	6.7	6.0	5.8	5.0	4.9

• Inflation ran at about four to five percent in 1991. McCallum believes it will be steady at about four percent in 1992.

• Automotive was sluggish in 1991; he sees an encore for 1992.

Despite this, McCallum sees some solid opportunities for manufacturing companies, especially those companies involved with and using higher technology equipment.

McCallum explains that in the past, when there were larger manufacturing engineering staffs at companies, there was a tendency for individuals on those staffs to play it safe. Being innovative isn't necessarily a safe activity. But now those staffs have been trimmed way back. Managers are faced with the tasks of implementing technologies. They are also feeling the pressures to reduce costs and improve quality.

So . . . those vendors of high technology equipment and products—whether they are innovative machine tools of the cutting or forming variety, automatic assembly systems, robots, lasers, or manufacturing software—may find themselves to be in a good position if they can reach those manufacturing managers.

Those manufacturing companies that are available to take advantage of that high technology equipment and products—and this means companies that are able to make the necessary investments—may find themselves to be in a good position vis-a-vis their competitors, who may be less financially fit and consequently unable to get the technical strength. P

TARGETS FOR CAPITAL INVESTMENTS

The targets for capital investments haven't changed much in the past few years with the exception of "Scrap/rework," which is up to its highest point and which shows a marked rise since 1988.

	1992	1991	1990	1989	1988
Direct labor	62.4	64.7	66.6	65.9	67.9
Scrap/rework	44.1	42.5	42.3	42.1	32.9
In-process inventory	38.1	39.4	40.2	39.4	38.4
Material costs	31.1	30.7	32.5	36.4	34.0
Indirect labor	22.9	24.6	24.1	25.0	24.7
Warranty/field service	11.1	9.6	8.4	10.7	(Not Asked)